

What is claimed is:

1. A semiconductor device on which an insulated gate bipolar transistor and a control circuit for driving the insulated gate bipolar transistor are formed on a same semiconductor substrate, comprising:

an input terminal via which a drive signal of the insulated gate bipolar transistor is input;

a Schottky barrier diode having an anode connected to the input terminal and a cathode connected to an input terminal of the control circuit; and

a p-channel MOSFET that shorts both ends of the Schottky barrier diode when the voltage of the drive signal input to the input terminal is higher than a predetermined voltage.

2. The semiconductor device according to claim 1, further comprising a resistor which is interposed between the cathode of the Schottky barrier diode and the input terminal of the control circuit.

3. The semiconductor device according to claim 1, further comprising a p-channel MOSFET which is serially connected between the cathode of the Schottky barrier diode and the input terminal of the control circuit.

4.           The semiconductor device according to claim 1,  
wherein a series circuit of a resistor and a p-channel  
MOSFET is connected between the gate and the emitter of the  
5 insulated gate bipolar transistor.

5.           The semiconductor device according to claim 1,  
further comprising a CMOS inverter circuit having an output  
terminal connected to the gate of the p-channel MOSFET,  
10 wherein a signal depending on a signal level of the drive  
signal input via the input terminal is input to the input  
terminal of the CMOS inverter circuit.